

## PART 1 – GENERAL INFORMATION

### STATEMENT OF WORK, BUREAU OF RECLAMATION LOWER COLORADO REGIONAL OFFICE ELECTRICAL LEAK LOCATION SURVEY

#### A. BACKGROUND

The Bureau of Reclamation (Reclamation), Lower Colorado Regional Office, Boulder City, Nevada, requires an Electrical Leak Location Survey (Survey) to be conducted at the Drop 2 Storage Reservoir Project near El Centro, California. The Drop 2 Storage Reservoir Project includes a 485-acre, geomembrane-lined water storage reservoir. The reservoir is divided into two cells. The reservoir invert has a 2-foot soil cover overlay. The cell embankments and a 15-foot-wide strip on the invert around the perimeter of the toe are covered with soil cement. The Survey shall include a 115-foot-wide strip around the perimeter of the reservoir cells. The combined distance around the perimeter of the two cells is approximately 27,500 Lineal Feet.

#### B. LOCATION

The Drop 2 Storage Reservoir Project is located approximately 30 miles east of El Centro, California, and approximately 25 miles west of Yuma, Arizona, on the north side of Interstate 8 near Exit 146, Brock Research Center Rd. The Drop 2 Storage Reservoir (Reservoir) is located opposite the All-American Drop Structure No. 2 and All-American canal, which are situated on the south side of Interstate 8.

#### C. SITE CONDITION

The project site is accessible from existing public roads. The work area is accessed by temporary construction roads. Most work areas are not accessible without a four-wheel-drive vehicle.

There is no power supply available at the work area. The Contractor shall provide a generator sufficient to meet his power needs.

#### D. PROJECT CONDITION

The Contractor shall become acquainted with the current condition of the job site, including access for the proposed work area. As this is an active construction project, the site conditions and access can change on a daily basis. At the time this work will be performed, soil cement operations and soil cover balancing will be complete in the reservoir area.

## E. WEATHER

Historical climate data for weather stations in the western U.S. are available on the Internet at the Western Regional Climate Center website, under Western U.S. Climate Historic Summaries, at the address: [www.wrcc.dri.edu/climsum.html](http://www.wrcc.dri.edu/climsum.html). The Government assumes no responsibility for deductions, interpretations, or conclusions made by the Contractor based on information made available by the Government, in accordance with the clause at FAR 52.236-3 "Site Investigations and Conditions Affecting the Work."

## PART II – OBJECTIVE

The purpose of this work is to evaluate the integrity of the geomembrane liner; primarily, the Survey is intended to identify construction damage.

### A. PROJECT DESCRIPTION

The Contractor shall furnish all of the labor, materials, equipment, and incidentals necessary to perform electrical leak testing of the geomembrane. The Survey shall be conducted in general accordance with the most recent version of ASTM D 7007 – “Standard Practices for Electrical Methods for Locating Leaks in Geomembranes Covered with Water or Earth Materials”. The Survey is intended to identify holes ¼ inch and larger. The geomembrane on the reservoir cell bottoms has a 2-foot soil cover overlay. The geomembrane on the embankments is covered with a geotextile drainage material on the top half and a geonet composite drainage material on the bottom half. The geosynthetic liner system on the slopes is covered with a 9-inch thick layer of soil cement. The slopes are 3H:1V. At the toe of the embankment around the perimeter of each cell is a one-foot thick by 15-to-20-foot wide gravel filter wrapped in geotextile. The gravel filter is covered with an 18-inch thick layer of soil cement. The survey shall include a 15-foot wide strip around the perimeter of the reservoir cells, including the area under the soil cement. The combined distance around the perimeter of the two cells is approximately 27,500 Lineal Feet.

### B. PERFORMANCE TESTING

Prior to start of the Survey, the Contractor shall conduct large-scale performance tests to help verify the accuracy of the leak survey for the Drop 2 project conditions. Performance tests shall be conducted over the geomembrane with soil cover and geomembrane with gravel and soil cement cover. As part of the bidding process, the Contractor shall provide a detailed, project-specific performance testing plan. The Contractor shall describe test methods and equipment to be used for testing geomembrane under soil cement, and test methods and equipment to be used for testing geomembrane under soil cover. The performance test and sensitivity of leak detection shall be satisfactory for the purposes of detecting damage to the geomembrane caused by soil cover, gravel, and soil cement placement operations and heavy equipment travel. The plan shall be designed to locate holes ¼ inch and larger.

### C. QUALITY CONTROL

The leak location data shall be taken on survey lines spaced no farther apart than twice the leak detection distance determined for a ¼-inch hole as determined in the performance test requirements. The measurement electrode spacing shall be no less than that used for the performance test. The spacing between measurements shall be no more than that used for the performance test.

The Electrical Leak Location Contractor shall record, plot, and analyze data for leak signals. In the soil cover survey area, the positions of these leak signals shall be located and the leak location excavated. The leaks shall be marked on the geomembrane surface. In the soil cement cover survey area, the positions of these leak signals shall be located and the locations marked on the surface of the soil cement. Reclamation will coordinate with the Drop 2 Reservoir Project Construction Contractor for geomembrane repairs.

Once repairs are completed, the Contractor shall repeat the survey on the two closest survey lines for a distance extending 25 feet before and beyond the detected leak location. If another signal is detected, this process shall be repeated until no signal indicating a leak estimated to be greater than ¼ inch is detected.

### D. QUALITY ASSURANCE

Government surveillance of the project includes only the amount necessary to provide assurance that the technical requirements of the work conform to established methods, procedures, and regulations. A Reclamation representative will be at the work area at all times.

Reclamation will observe the leak location survey and verify the following:

- Leak location area is properly identified and marked
- Leak location area is carefully excavated by hand, visually identified, and marked
- Leak location and repair is noted on the as-built (record drawings)
- Cover soil material is carefully replaced over the excavated leak area

### E. LEAK SURVEY REPORTING

Data acquisition shall be digitally recorded in the field during the survey by the Contractor and shall be available for viewing by the Reclamation representative and COR. The Electrical Leak Location Contractor shall communicate the results of all survey work in the form of a daily summary report to the COR. A final report documenting the electrical leak location surveys shall be submitted within 14 days of the completion of the leak survey. The report shall document the methodology used, the locations and descriptions of leaks detected, and a record drawing of the survey area showing the approximate leak locations detected.

## F. CONTRACTOR RESPONSIBILITIES

The Contractor shall exercise management and operational control and retain full responsibility for performance and quality of the work set forth in this Statement of Work.

1. Existing roads are available for access to the site. The Contractor shall comply with all conditions imposed upon the use of the existing roads by those entities that have jurisdiction. The Contractor shall be accompanied in the field by a Reclamation representative at all times.

2. The Contractor is responsible for adhering to all applicable rules, regulations, and laws relating to safety and health, including environmental quality control (i.e., dust control, hazardous materials, etc.). This applies to all aspects of the Contractor's operations, including mobilization, Survey activities, and project cleanup.

3. All workers are required to attend Safety Security Environmental Awareness Training (SSEAT) prior to commencing onsite work. Training will be provided by Reclamation. The SSEAT training takes approximately one half-hour and will be held at the onsite Reclamation field trailer.

4. The Contractor shall not require any employee to work in surroundings or working conditions that are unsanitary, hazardous, or dangerous to health and safety. The Contractor shall furnish or require employees to obtain personal safety apparel and equipment needed for the specified work and as required by the Department of Labor and Health Regulations (OSHA) as published in 29 CFR and in compliance with "Reclamation Safety and Health Standards" (RSHS).

"Reclamation Safety and Health Standards" can be viewed at the following location:  
<http://www.usbr.gov/ssle/safety/RSHS/rshs.htm>

The Contractor shall comply with "Reclamation Safety and Health Standards" and OSHA's safety Regulations. Such responsibilities shall apply to the Contractor's operations as well as any subcontractor operations. The Contractor shall immediately correct any safety or health violations and notify the CO in writing of any noted violation and the proposed corrective action.

5. During the performance of work, the Contractor shall comply with applicable Federal, State, and local laws and regulations, with applicable requirements from the "Reclamation Safety and Health Standards" and as outlined in this item regarding the prevention, control, and abatement of dust pollution. Should a conflict exist in the requirements for dust abatement, the most stringent requirement shall apply. The Contractor shall be responsible for all damages resulting from dust originating from construction operations under this Statement of Work.

The Contractor shall provide all the labor, equipment, and materials required to prevent dust nuisance or damage to persons, property, or activities including, but not limited to, recreational activities, traffic, and similar conditions.

6. The Contractor shall clean up and dispose of all waste materials and rubbish. The waste materials and rubbish shall be disposed of in accordance with applicable Federal, State, and local laws and regulations and in accordance with applicable requirements of the "Reclamation Safety and Health Standards." Should there be a conflict in the requirements for cleanup and disposal of waste materials, the most stringent requirement shall apply. The Government will inspect the site for adherence to required cleanup regulations.

NOTE: Because of the size of the Survey area and the type of damage to be identified, the edge of the geomembrane around the outside perimeter of the reservoir cells will not be exposed. Reclamation will supply up to three laborers to assist the Contractor with laying out the survey grid and other light duty support for the duration of the survey. If moisture beyond what is naturally present in the soil is required, Reclamation will be responsible for supplying a water truck.

NOTE: At the sole discretion of the Government, the soil-cement-covered area to be surveyed may be reduced and/or the soil-covered area to be surveyed may be increased. The Government may also opt to increase the minimum hole size to be identified.

## G. PERMITS AND APPLICABLE PUBLICATIONS

Permits, General: The Contractor shall obtain all permits, licenses, and regulatory approvals that may be required by, but are not necessarily limited to, cities, counties, and State.

The Contractor shall be cognizant of and ensure compliance with all requirements of the "Reclamation Safety and Health Standards," OSHA, and General Industry Safety Regulations. Such responsibilities shall apply to the Contractor's operation as well as any subcontractor operations. When safety or health violations are called to the Contractor's attention by the CO or COR, the Contractor shall immediately correct the condition. Such notice, either orally or in writing, when served on the Contractor or the Contractor's designated on-site representative, will be deemed sufficient. Oral notices will be confirmed to the Contractor in writing by the CO within 7 calendar days.

The Contractor shall indemnify and hold the Government harmless for any and all losses, damages, or liability on account of personal injury, death, or property damage of any nature whatsoever and by whomsoever made, arising out of the activities of the Contractor, employees, subcontractors, or agents under the contract. Such indemnity shall include, but shall not be limited to, failure of the Contractor, employees, subcontractors, or agents to comply with the safety and health provisions contained in this Statement of Work. .

Performance of Work: In the event the Contractor fails or refuses to promptly comply with all Federal, State, and local safety and health laws, regulations, codes, and standards, the CO may issue an order to suspend all or any part of the work. When satisfactory corrective action is taken, an order to resume work will be issued. The Contractor shall not be entitled to any extension of time, or to any claim for damage or to additional costs due to either the directive or the suspension order. Failure of the CO or COR to order discontinuance of any or all of the Contractor's operations shall not relieve the Contractor of the responsibility for the safety of personnel and property.

#### H. DELIVERABLES

The Contractor shall complete all work in this Statement of Work within 45 calendar days from the date of award. The Contractor shall be available to begin work within 14 calendar days from the date of award. The Contractor shall furnish all materials and equipment to perform survey work, including daily and final survey reports to the Government in accordance with this paragraph and the requirements in the provisions, clauses, and paragraphs of this Statement of Work and contract itself.